CLAIMS

What is claimed is:

1. A method for assigning resources in a wireless communication system, the method comprising the steps of:

determining an interference level in a plurality of timeslots allocated for user traffic;

determining an amount of useable resources in the plurality of timeslots;

computing a Figure of Merit (FOM) for each of the plurality of timeslots by assigning resources to at least the timeslot having higher FOMs than any other of the timeslots, recomputing the FOM for the at least one timeslot, and increasing the at least one timeslot FOM by a value to prefer assigning additional resources to the at least one timeslot;

varying weighting factors applied to interference and useable resources in computing the FOM to generate a plurality of timeslot sequences;

measuring the total effective interference for each timeslot sequence; and

assigning system resources in timeslots according to the timeslot sequence having the lowest total effective interference.

2. The method of claim 1 wherein the resources are resource units in a time division duplex/code division multiple access communication system.

3. The method of claim 1 wherein the FOM for an i^{th} timeslot is computed per

$$FOM_i = -\alpha * \Delta I_i + \beta * RU_{usable}(i)$$

where ΔI_i is a difference between the measured interference in timeslot i and the lowest interference among all timeslots allocated for user traffic in a particular direction, α is a weighting factor for adjusting the weight given to the interference parameter, $RU_{usable}(i)$ is the amount of resource units that can be used by a new call in timeslot I, and β is a weighting factor for adjusting the weight given to the resource

unit parameter.

4. The method of claim 1 wherein the total effective interference is given by

$$I_{et} = \left(\sum_{k=1}^{K} I(k) \cdot \frac{16}{SF(k)} \right) \cdot frag\_penalty(j)$$

where $I(k)$ is the interference of code k, $SF(k)$ is the spreading factor of code k, and j is the number of time slots used for the new call.

5. A radio network controller comprising:

a processor for assigning resources when at least one call is initiated in a wireless communication system, the processor configured to generate a plurality of timeslot sequences arranged according to each timeslot's FOM, select the timeslot sequence having the lowest total effective interference, and assign codes to timeslots according to the location of the timeslots within the timeslot sequence having the lowest total effective interference.

6. The radio network controller of claim 5 wherein the resources are resource units in a time division duplex/code division multiple access communication system.

7. The radio network controller of claim 5 wherein the FOM for an i^{th} timeslot is computed per

$$\text{FOM}i = -\alpha * \Delta Ii + \beta * RU_{usable}(i)$$

where ΔIi is a difference between the measured interference in timeslot i and the lowest interference among all timeslots allocated for user traffic in a particular direction, α is a weighting factor for adjusting the weight given to the interference parameter, $RU_{usable}(i)$ is the amount of resource units that can be used by a new call in timeslot I, and β is a weighting factor for adjusting the weight given to the resource unit parameter.

8. The radio network controller of claim 5 wherein the total effective interference is given by

$$I_{et} = \left(\sum_{k=1}^{K} I(k) \cdot \frac{16}{SF(k)} \right) \cdot frag\_penalty(j)$$

where $I(k)$ is the interference of code k, $SF(k)$ is the spreading factor of code k, and j is the number of time slots used for the new call.

9. A base station comprising:

a processor for assigning resources when at least one call is initiated within the geographic coverage area of the base station, the processor configured to generate a plurality of timeslot sequences arranged according to each timeslot's FOM, select the timeslot sequence having the lowest total effective interference, and assign codes to timeslots according to the location of the timeslots within the timeslot sequence having the lowest total effective interference.

10. The base station of claim 9 wherein the resources are resource units in a time division duplex/code division multiple access communication system.

11. The base station of claim 9 wherein the FOM for an i^{th} timeslot is computed per

$$FOM_i = -\alpha * \Delta I_i + \beta * RU_{usable}(i)$$

where ΔI_i is a difference between the measured interference in timeslot i and the lowest interference among all timeslots allocated for user traffic in a particular direction, α is a weighting factor for adjusting the weight given to the interference parameter, $RU_{usable}(i)$ is the amount of resource units that can be used by a new call in timeslot I, and β is a weighting factor for adjusting the weight given to the resource unit parameter.

12. The base station of claim 9 wherein the total effective interference is given

by

$$I_{et} = \left(\sum_{k=1}^{K} I(k) \cdot \frac{16}{SF(k)} \right) \cdot frag\_penalty(j)$$

where $I(k)$ is the interference of code k, $SF(k)$ is the spreading factor of code k, and j is the number of time slots used for the new call.

13. A method for assigning resources in a wireless communication system, the method comprising the steps of:

determining an interference level in a plurality of timeslots allocated for user traffic;

determining an amount of useable resources in the plurality of timeslots;

computing a Figure of Merit (FOM) for each of the plurality of timeslots;

arranging the plurality of timeslots in a timeslot sequence according to the FOM of each timeslot;

repeating steps 1 through 4 to generate a plurality of timeslot sequences;

selecting the timeslot sequence with the lowest total effective interference; and

assigning system resources in timeslots according to the timeslot sequence having the lowest total effective interference.

14. The method of claim 13 wherein the resources are resource units in a time division duplex/code division multiple access communication system.

15. The method of claim 13 wherein the FOM for an i^{th} timeslot is computed per

$FOMi = -\alpha * \Delta Ii + \beta * RU_{usable}(i)$

where ΔIi is a difference between the measured interference in timeslot i and the lowest interference among all timeslots allocated for user traffic in a particular direction, α is a weighting factor for adjusting the weight given to the interference parameter, $RU_{usable}(i)$ is the amount of resource units that can be used by a new call in

timeslot I, and β is a weighting factor for adjusting the weight given to the resource unit parameter.

16. The method of claim 13 wherein the total effective interference is given by

$$I_{et} = \left(\sum_{k=1}^{K} I(k) \cdot \frac{16}{SF(k)} \right) \cdot frag\_penalty(j)$$

where $I(k)$ is the interference of code k, $SF(k)$ is the spreading factor of code k, and j is the number of time slots used for the new call.